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ABSTRACT

To improve outdoor safety in general and the Hunter Safety Program in particular, 879 reported search and rescue incidents involving lost outdoor recreationists conducted by the New Hampshire Fish and Game Department for 1974 to 1979 were studied. Data indicated that most incidents involved hikers (45%) and hunters (18%), occurred on clear sunny days during summer and fall, and resulted from persons becoming disoriented in the woods in late afternoon or early evening, and that only 5% of all lost outdoor recreationists, 17% of hunters, and 1% of hikers had graduated from a hunter safety course. Questionnaires returned by 83 of the 151 lost hunters indicated percentages who were deer hunting (83%), in familiar territory (54%), with companions (74%), and graduates of hunter safety classes (46%) when becoming lost. Recommended improvements in New Hampshire's Hunter Safety Program that might reduce the number of lost hunters were: map and compass training; slide programs on shelter building, firemaking, and medical self-help; guest appearances by lost hunters; and role-playing of actual lost hunter incidents. Suggestions for increasing public awareness among all outdoor recreationists of the need for exercising caution in the woods; conservation officer and hunter questionnaires; and tips and personal narratives from lost hunters are included. (NEC)

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NEW HAMPSHIRE LOST PERSON STUDY 1974 - 1979

by
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New Hampshire Fish and Game Department
Hunter Safety Education Program
Project W-66-S-9

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1980

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I. Introduction

When people get lost in the wilds of New Hampshire, it is the responsibility of the Fish and Game Department to find them. Each year in New Hampshire, roughly 175 search and rescue missions are conducted by Conservation Officers to locate lost hunters, hikers and other outdoor enthusiasts.

Among outdoor recreationists, hunters have the best opportunity to receive training that would prepare them for getting lost in the woods. Presently all first time resident hunters are required to successfully complete a Hunter Safety class before purchasing a license. Although the Hunter Safety curriculum includes use of map and compass, shelter building and basic first aid, hunters continue to get lost in the woods.

Success of the Hunter Safety Program over the past 30 years has been measured largely in terms of hunting related accidents. However, each year over three times more hunters become lost in the woods than are involved in firearms accidents.

The objective of this project was to study reported lost person incidents with the goal of improving outdoor safety in general, and the Hunter Safety Program in particular. The first phase of the study looked at all search and rescue incidents in which Fish and Game was involved in the six-year period, 1974 through 1979. This time interval included three years before the new hunter safety law requiring all first time hunters to successfully complete a Hunter Safety Class, and three years after. The second phase concentrated on lost hunters.

II. Research Methodology

Phase I - Search and Rescue Reports:

Each search and rescue mission in which Fish and Game participates requires completion of a report. These are filed by Conservation Officers and are kept at Fish and Game Headquarters. (A sample search and rescue form is contained in Appendix A.)

Six years of search and rescue records were examined in this study. A check was run on each reported incident to see if the person had taken Hunter Safety in New Hampshire. This information is maintained on index cards; all available records (dating back to 1963) were checked. In cases involving more than one person, the first individual listed on the report was selected. For organized groups, the group leader was chosen.

Each completed reporting form was coded and transferred to magnetic tape for computer processing. A program written in COBOL language was used to produce descriptive statistics from the raw data.

Phase II - Survey of Lost Hunters:

All names of individuals who reportedly became lost while hunting were included in the second phase of the project. Questionnaires were mailed to each person based on the address listed on the search and rescue form.

Each of these "lost hunters" was sent an introductory postcard in which they were told of the forthcoming questionnaire. The importance of their participation in this study was stressed. The postcard served the dual purpose of stimulating the respondent's interest in the survey, and for checking current addresses. Those which resulted in a return of the post-card because of inadequate addresses were eliminated from the questionnaire mailing.

Roughly ten days after the postcard mailing, a questionnaire and letter were sent to each of the lost hunters. The current issue of NEW HAMPSHIRE NATURAL RESOURCES magazine was enclosed in appreciation for participation

in the survey.

Each questionnaire contained 40 questions. Most (28) dealt with the reported incident; others pertained to previous hunting experience and other outdoor recreational activities. The hunter was also asked if getting lost had changed his hunting behavior on subsequent trips. The date of the incident was provided so that the individual would recall the event. A complete questionnaire, together with accompanying letter and introductory postcard are included in Appendix A.

III. Results and Discussion

Phase I - Search and Rescue Reports:

During the period 1974 through 1979 the Fish and Game Department participated in 1,050 search and rescue missions. The majority (91%) of these included drownings, "lost persons" (cases in which a person became disoriented and/or delayed), and "rescued persons" (individual not "lost" but disabled or stranded).

In terms of rescue effort (man-hours and costs), drownings take the most time (37.3 hours per incident) and are the most expensive type of missions to conduct. Other rescue missions take much less time and are less costly. Drowning missions require the most effort due to the nature of the rescue operation. In contrast to searches for "lost persons" or rescue missions which take place generally in a known location, drownings require extra time for special equipment and trained personnel. Also searching in water is much slower than on land.

Table 1. Search and Rescue Missions conducted by Fish and Game, 1974-1979.

Type of Incident	Number % of Total	Effort per Mission Man-hours 1/	Costs 2/
Drownings	198, 19%	37.3	$304
Lost Persons	559, 53%	16.2	111
Rescued Persons	198, 19%	14.8	105
Other 3/	95, 9%	25.4	160

1/ Based on Conservation Officers time.

2/ Diving and other costs were often not reported.

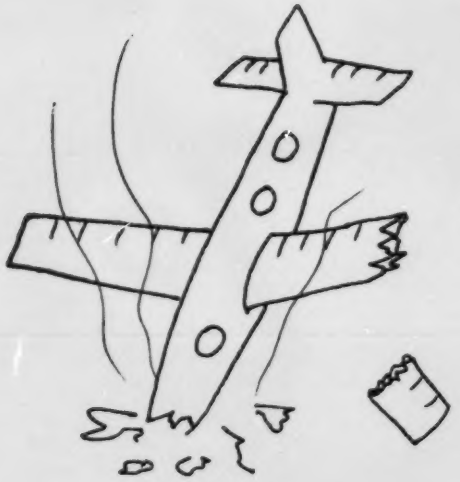
3/ Includes incidents involving plane crashes, "missing persons" (generally police matters -- escaped prisoners, mental patients, runaways), and miscellaneous incidents not covered by other categories.

All search and rescue missions do not involve outdoor recreationists. Often the Fish and Game Department is called in for plane crashes, suicides, disappearances of the mentally ill, and other situations that don't involve someone enjoying the outdoors. As this study concentrated on outdoor

DROWNING

RESCUED PERSON

LOST PERSON



PLANE CRASHES

MISSING PERSON

OTHER

recreationists who get lost, only those incidents that involved outdoor enthusiasts were selected. This reduced the sample to 879 incidents.

Table 2. Activity being Performed by Individuals Getting Lost while Engaged in Outdoor Recreation.

Activity	Number, %
Hunting (including trapping)	163, 18%
Fishing	48, 5%
Hiking	395, 45%
Skiing and Snowshoeing	17, 2%
Water Sports (other than fishing)	130, 12%
Snowmobiling	20, 2%
Walkaway	7, 1%
Other	126, 14%
Total	879

Hiking and hunting were the activities most often reported among those participating in outdoor recreation. Therefore, hunters and hikers are compared as separate groups with all outdoor recreationists.

1. Cause of Incident

Most incidents resulted from persons becoming disoriented in the woods. Although this result was also true for the hunter group, hikers got into trouble most often due to a fall or injury.

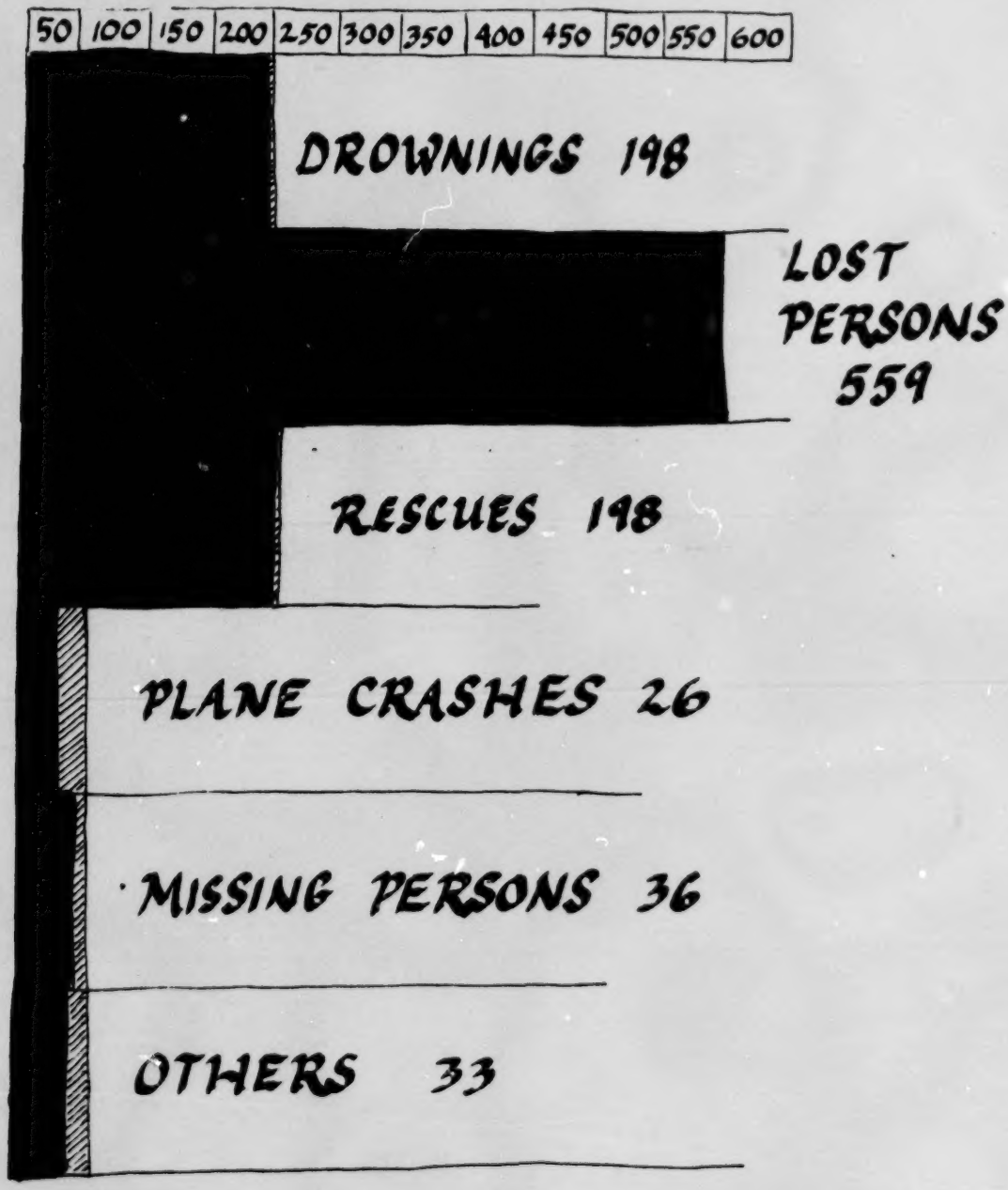
Table 3. Cause of Incident

Cause	All Outdoor Recreationists		Hikers		Hunters	
Disoriented in Woods	168,	19%	71,	18%	72,	44%
Darkness	102,	12%	46,	12%	45,	28%
Misunderstanding of Arrangements	112,	13%	76,	20%	11,	7%
Trailing Animal	7,	1%	0,	0%	5,	3%
Fall or Injury	159,	18%	107,	28%	7,	4%
Illness	55,	6%	36,	9%	6,	4%
Fatigue	12,	1%	6,	2%	0,	0%
Intoxication	18,	2%	3,	1%	0,	0%
High or Rough Water	34,	4%	7,	2%	2,	1%
Equipment or Vehicle Failure	17,	2%	1,	1%	3,	2%
Unknown/Other	184,	21%	30,	8%	12,	7%

2. Time of Year

The majority of recreational incidents took place during the summer and fall. Although more hikers required assistance in the summer, fall was the major season for lost hunters.

1974 ~ 1979
SEARCH AND RESCUE MISSIONS



TOTAL CASES=
1,050

Number of Incidents per Activity

Hiking	395
Hunting	163
Fishing	48
Snowmachining	20
Boating	54
X-C/Snowshoeing	13
Skiing	4
Walkaway	114
Other	236

Table 4. Seasonality of Search and Rescue Missions

Season 1/	All Outdoor Recreationists 2/	Hikers	Hunters
Summer	292	159	0
Fall	309	135	159
Winter	87	39	3
Spring	147	62	1

1/ Season defined as Summer: 6/1 - 8/31; Fall: 9/1 - 11/30; Winter: 12/1 - 2/28; Spring: 3/1 - 5/31.

2/ Numbers based on proportion (84%) of incidents that involved outdoor recreationists.

3. Weather Conditions

Generally outdoor recreationists got in trouble on clear sunny days. In fall and winter most searches took place on colder than average days. In the spring most incidents occured on warmer days, probably due to the fact that many people are eager to be outdoors following a long cold winter.

4. Time of Day

The majority of incidents took place in the late afternoon or early evening. This is true not only for incidents concerning lost individuals, but also in cases where the person had to be transported out due to injury.

5. Method of Recovery

Looking at all outdoor recreationists requiring assistance of some sort, most had to be transported out due to medical disability. (It must be noted however, that all drownings (198 cases) would be included in this catagory).

Hikers and hunters were more apt to be able to walk out, either on their own or with minimal assistance.

Table 5. Recovery of individuals

Method of Recovery	All Outdoor Recreationists	Hikers	Hunters
Walked out Unaccompanied	261	127	80
Assisted Out	289	165	73
Transported (medically disabled)	314	100	8
Not Recovered	11	2	0

Weather Conditions for each Season

	Summer	Fall	Winter	Spring
Clear	234	207	51	108
Overcast	54	55	14	26
Windy	4	20	16	10
Snow		14	13	2
Rain	50	70	10	27
Fog	4	1		2

6. First Aid Required

On site first aid was not usually required when the person was found. Hikers, however, needed medical assistance far more often than did hunters.

A small percentage of the incidents involved an individual having a previous medical problem. This included conditions such as a weak heart, trick knee, on medication and so forth.

Table 6. Incident Required On-site First Aid

Group	Number, % of Incidents Requiring First Aid
All Outdoor Recreationists	140, 16%
Hikers	88, 29%
Hunters	2, 1%

7. How Incident was Reported

The Fish and Game Department was most often notified of the incident by another agency or an outdoor group. These sources included local police, fire or rescue squads, and organizations such as the Appalachian Mountain Club. This was true for hikers also. However, with the hunter group, family or hunting companions were more often responsible for notifying Fish and Game.

Table 7. Method of Reporting Incident to Fish and Game Department

Reporter of Incident	All Outdoor Recreationists 1/	Hikers	Hunters
Family	207	84	42
Companion	150	103	45
Group or Agency 2/	331	140	30
Undetermined	192	69	45

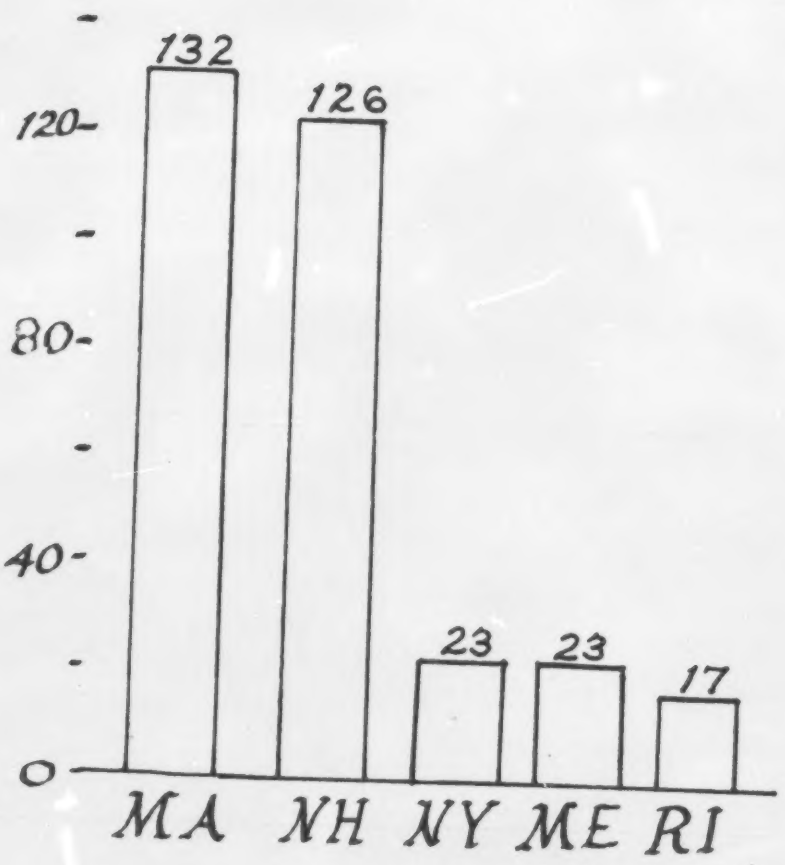
1/ Numbers based on proportion (84%) of incidents that involved outdoor recreationists.

2/ Includes police, fire department, Appalachian Mountain Club, and local rescue equads.

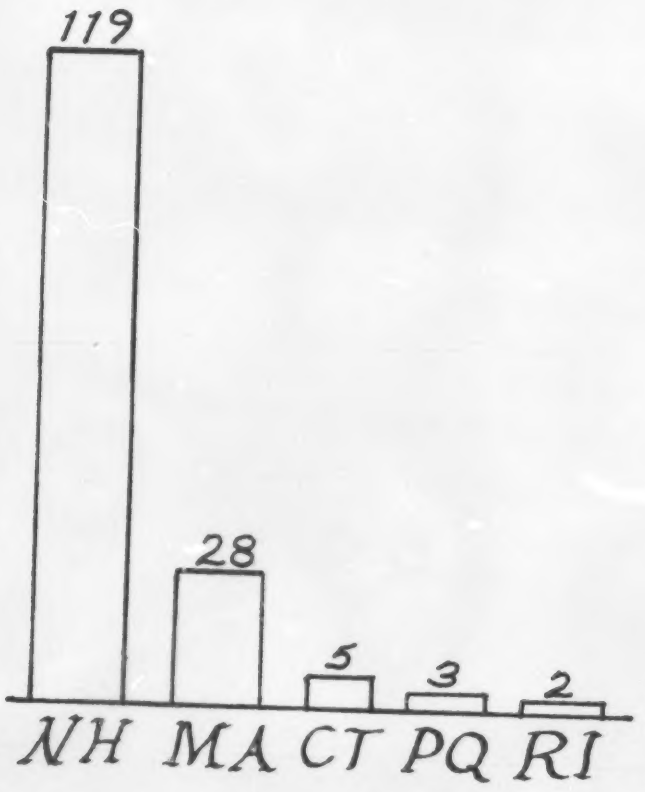
8. Residence

As would be expected most incidents involved persons from New Hampshire or nearby states. Massachusetts was the state from which most hikers came. Most hunters were from New Hampshire.

Top Five Residence States



Hiking



Hunting

The larger cities in the southern or central part of New Hampshire were identified most frequently as home town by lost persons. However, if you compare the number of incidents on a per capita basis, the northern town of Berlin ranked the highest.

Table 8. Residence by State or Province

Group	Most Frequently Reported Residence 1/
All Outdoor Recreationists	NH, MA, NY, ME, RI
Hikers	MA, NH, NY, ME, RI
Hunters	NH, MA, CT, QUE, RI

1/ First five states or provinces in order of frequency.

Table 9. Residence by town for New Hampshire Residents

Group	Most Frequently Reported Town 1/
All Outdoor Recreationists	Manchester, Nashua, Berlin, Rochester, Laconia
Hikers	Manchester, Nashua, Laconia, Hanover, Derry
Hunters	Manchester, Berlin, Nashua, Rochester, Concord

1/ First five towns or cities in order of frequency.

9. Age and Sex

Hunters as a group were slightly older than hikers (average age of 33 vs. 28). For all outdoor recreationists the mean age was 28. Most incidents (80%) involved males.

10. Location of incident

Most incidents occured in the mountainous hiking areas of the state. For outdoor recreationists and hikers, the White Mountains area was a favorite for getting lost. Hunters, however, did not display the same geographical consistency. Towns in northern and southern New Hampshire were named. See Figs. 1 and 2.

Table 10. Location of Incident.

Group	Most Frequently Reported Township 1/
All Outdoor Recreationists	T & M purchase 2/, Lincoln, Albany, Franconia, Bartlett
Hikers	T & M purchase, Lincoln, Albany, Franconia, Hart's Locati
Hunters	Pittsburg, Allenstown, Nottingham, Dummer, Woodstock

1/ First five townships in order of frequency

2/ Thompson and Meserves Purchase -- Mt. Washington

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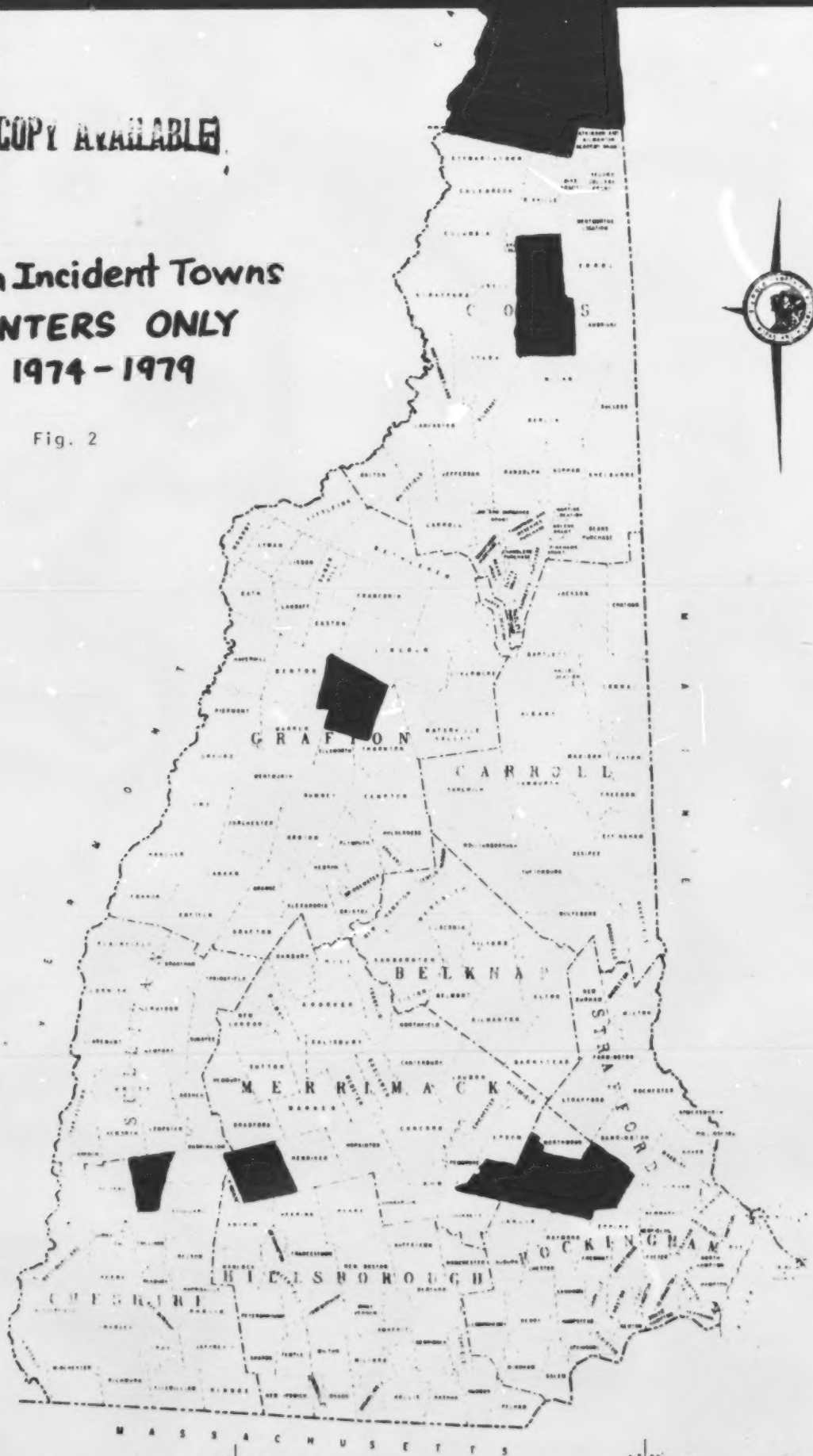
Top Ten Incident Towns
HUNTERS ONLY
1974 - 1979

Fig. 2



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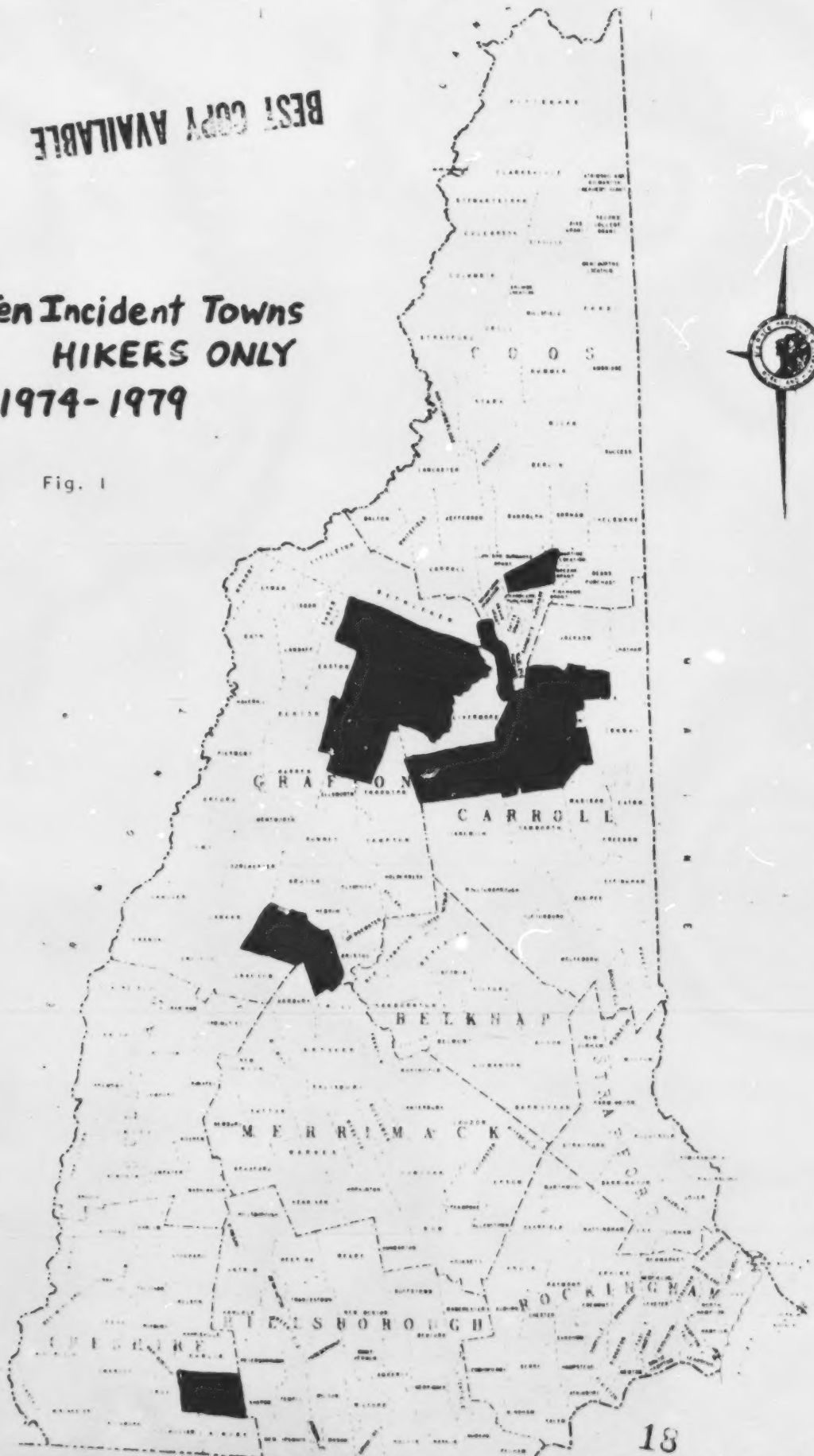
Top Ten Incident Towns
HIKERS ONLY
1974-1979

Fig. 1



11. Graduation from Hunter Safety

As would be expected hunters were the highest group in terms of successful completion of a Hunter Safety class. The low proportion of lost hunters graduating from a Hunter Safety course can be partially explained by the fact that before 1977 only hunters between the ages of 16 and 19 were required to take the course. As of 1977 all first-time hunters have to pass the program. Non-residents need only to show an out-of-state license in lieu of a Hunter Safety certificate from theirs or any other state.

Table 11. Graduation from Hunter Safety

Group	Hunter Safety Graduates (Numbers, %)
All Outdoor Recreationists	48, 5%
Hikers	6, 1%
Hunters	28, 17%

Phase II - Lost Hunter Questionnaire Results

A total of 151 individuals were listed as "hunting" on the search and rescue reporting forms. Introductory postcards were mailed to each hunter; however, 12 were returned undeliverable, leaving 139 assumed to be delivered.

Questionnaires were subsequently mailed to each individual. Out of 139, a total of 83 were completed and returned to Fish and Game. This represents a return of roughly 60%. Subsequent mailings or telephone calls to individuals who did not respond immediately would probably have increased the percent return. (Filion 1978)[1] Howwver, for the time frame of this study, the number returned after the first mailing provided an adequate sample for describing the lost hunter population.

1. Filion, F.L. 1978. Increasing the Effectiveness of Mail Surveys. Wildl. Soc. Bull. 6 (3): 135-141

The results of the questionnaire indicate that the majority (83%) of the respondents were deer hunting at the time they got lost. Although 10% listed bear hunting, only 2 of these were hunting black bear exclusively. The other 7 answered both deer and bear. Those that selected the "other" response listed bobcat, "mostly enjoying the woods" and marking trail into deer stand".

As to whether the hunter was in familiar territory or not, the responses varied -- 45 responded yes, 37 no. In many cases the answer was accompanied with comments that they had been in the area once before, or were somewhat familiar (i.e., partial familiarity).

Only three hunters were accompanied by dogs -- in two instances they helped the hunter find his way out, and one hindered the search.

The majority of hunters (74%) were hunting with companions. It would seem that simply having along a hunting companion did not safeguard the person from becoming lost. (It is possible that those who did not hunt alone were found more quickly.)

Regarding the method of hunting, several people gave multiple answers, indicating more than one method employed during the course of the hunt. The most frequent response however, was "stalking". In three instances "walking" was written in.

As to the activity that resulted in the hunter becoming disoriented, the highest percentage of responses were "attempting to return from hunting". Some indicated under "other" that they were "not really lost", or that they were sleeping!

Based on the responses, the weather conditions at the time of the incident were similar to what was reported in the first phase of the study -- clear, sunny days. However, many respondents added that , "it was cold".

The majority of hunters did not realize something was wrong until they were overcome by darkness. Several did, however, include "overcome by darkness" with one of the other choices. In the "other" category there was a variety of responses, ranging from "broke my glasses" to explanations for "overcome by darkness".

Once realizing that something was wrong, the reactions were varied, and many had numerous initial reactions. The most common action was to sit down and think about what to do, followed by signaling for help and continuing to look for familiar landmarks. Those answering the question by circling "other" gave answers such as, "built a shelter of spruce boughs", "start a fire", "was on the ground with a broken leg and could't walk", "took a compass bearing and proceeded at a faster pace".

As to how the hunter found his way out of the woods, most frequently indicated was, "listened for sounds". Many stated that they had "followed game on logging trail", or had "used a map and/or compass". Many of the respondents who checked "other" mentioned that they simply sat and waited for daylight. (one person claimed he never found his way out!)

The responses to questions on emergency preparedness indicate that most hunters do carry equipment in preparation for the unexpected, or at least they do so now.

Practically all of the hunters had firearms, ammunition and knives when they got lost. Many also had rope, fire starters and a compass. The most common item listed under "other", which we neglected to include in the initial list, was plastic bag for shelter.

After becoming lost, the most sorely missed item of equipment was additional food. Many also wished they had a compass. Under "other" hunters listed "flashlight", "a way out". amd "warmer clothes".

The majority of lost hunters did signal for help, and the most common method was to "shoot three times in the air", followed by "yelling". One of those under "other", called on his walkie-talkie.

As to what the hunter did for food, most said they did not eat -- some because they admitted not feeling like eating (knot in stomach), others had some candy from home, but did nothing else for food.

Most of the respondents spent the night alone in the woods before walking out or being found the next day. Many also stated that they had spent only part of the

night in the woods. The majority of hunters did not build a lean-to or shelter, however. Instead they used a tree or said that they did not need shelter.

The majority of hunters were well-dressed for the cold. Layers of clothing, hat, mittens, some article of wool clothing, insulated boots and bright colors were all selected by at least 64% of these respondents.

Most hunters said they did not build a fire after becoming lost. In several cases the hunter attempted to make a fire, although dampness (either on the ground or falling rain) prevented them from being successful.

Virtually, all of the lost hunters were confident that they would be found within a day or two, although nearly one-quarter of the respondents did admit to some panic or irrational feelings at some point while lost. Evidence of these feelings is found in some of their responses:

> "I heard moose all night. Next morning saw tracks 50 feet from where I was"; or "I would not believe my compass for some reason, and it was right"; or "I panicked to the point of physical exhaustion"; 'was wet and cold -- things looked bleak till I got a fire started".

After becoming lost, most of the hunters expected to walk out on their own, and in fact the majority did.

Most of the hunters left word with someone regarding where they would be hunting and when they expected to return. Regarding the age at which the individual first hunted, most started early (mean of 15 years old). As might be expected the majority of individuals also participate in other forms of outdoor recreation -- fishing, hiking, snowmobiling, cross-country skiing, or showshoeing. They also hunt for a variety of game in addition to deer -- rabbit, woodcock, grouse, bear and waterfowl.

Slightly less than half (46%) of the hunters claimed to have graduated from a Hunter Safety class. This response is substantially different from what was found in Phase I of the study. (Only 17% of the hunters in Phase I had completed a Hunter Safety course.) However, the lack of information on graduates from out-of-state Hunter Safety courses is probably responsible for the discrepancy.

The majority (79%) of hunters claimed to have been turned around or lost in the woods only once or twice in their lives. Many said that the incident in question was the first time they had gotten lost.

Getting lost seemed to make hunters more aware of the need for emergency preparedness. When asked what they would do differently, they commonly answered, "carry a map and compass", or "be more careful", or "make sure I have everything in preparation for the unexpected". Others were more specific:

1. read Outdoor Life for tips on safety
2. bring extra pair of glasses
3. bought new compass, didn't believe old one
4. carry a watch
5. make sure I have flashlight with fresh batteries
6. will not fall asleep again
7. try not to let a smart old buck deer outsmart me

For a complete list of comments see Appendix B.

Based on the results of Phase II, the following represents a typical scenario involving a lost hunter and his rescue:

It is 6 P.M. and 37°F. The hunter is attempting to rejoin his companions. He realizes that he has not started back early enough, and darkness soon overtakes him. In the dark he can find no familiar landmarks, so he attempts to signal his companions by firing three shots in the air; there is no response. He continues to fire series of three shots, and listens for any sounds that might lead him out of the woods.

After sitting and thinking for a moment about what to do, the lost hunter attempts to find and follow an old tote road. The food he brought from home has long since been eaten. He does not build a shelter, but may sit next to a tree to wait for morning and the light that it brings. He attempts to build a fire, although he may not be able to. He doesn't panic, but sits and waits for morning, at which time he expects to walk out on his own, which in fact he does.

While the hunter has been dealing with the thought of spending the night in the woods, someone has notified Fish and Game that he is lost. He has a 50% chance of being found before he walks out the next day. Upon emerging from the woods, the lost hunter realizes just how hungry he is! Although tired and cold from his night in the woods, he is relieved that it is over, if not a little embarrased at having a search conducted on his behalf.

Fourteen man-hours were spent looking for him, and he was found in the same town as he was lost. The incident will not keep him from hunting again, although he will be more careful in the future, and he will always carry a compass.

IV. Recommendations

A. Hunter Safety Program

The number of lost hunters might be reduced if certain improvements were made in the New Hampshire Hunter Safety Program. These include:

1) Map and Compass training. Currently instructors receive limited formal training in using a map and compass. This deficiency could be corrected at the annual instructors workshop. Compass orientation should also be made a requirement in the student's final field examination.

2) Slide programs. Short slide programs should be developed on firemaking, shelter building, medical self-help and use of map and compass to teach the student ways of survival, should he become lost while hunting.

3) Guest appearances. Individual hunters who responded to the questionnaire might be willing to relate their experience to hunter safety classes. These presentations would be effective in increasing the students awareness of the possibility of getting lost in the woods.

4) Lost hunter narratives. Students should participate in role playing exercises based on actual lost hunter incidents. Narratives could be developed from actual cases such as those reported in this study. (See Appendix C)

B. General Outdoor Information and Education

The following measures would help increase public awareness in general, of the need for exercising caution in the woods. Although some of these recommendations apply primarily to hunters and fishermen, most would be useful for all outdoor recreationists.

1) Add special section on outdoor safety and emergency preparedness to the annual publication of hunting and fishing regulations.

2) Continue to publish and widely distribute the book entitled "You Alone in the North Woods". This publication is designed to teach the fundamentals of outdoor survival to hunters and other outdoor recreationists.

3) Present hunter safety slide shows (described above) at fairs, exhibits, civic groups, etc.

4) Initiate youth hunting and fishing programs that include safety as well as techniques.

5) Publish the results of this study in various outdoor magazines.

6) Broadcast public service announcements (radio and TV) during peak outdoor recreational seasons reminding the public of the need for adequate outdoor preparation.

7) Publish guidelines for organized outdoor group hiking.

8) Print and distribute place mats giving outdoor safety tips.

9) Distribute posters at sporting goods stores and trail heads reminding people of necessary equipment and proper notification prior to undertaking outdoor activities.

10) Expand outdoor education programs by sponsoring teacher workshops, and by assembling information packets for schools and camps.

11) Recommend to family camping groups that youth be equiped with whistles for signalling.

12) Conduct outdoor safety conferences for various agencies involved in outdoor education.

13) Invite public groups to attend outdoor safety workshops.

C. Revisions in Existing Search and Rescue Reporting Forms

The existing reporting form should be changed to standardize data entries by conservation officers. A proposed revision of the search and rescue form is shown in Appendix D. By adopting this format, greater consistency in the data would be achieved. Additionally, the information could be readily transferred to computer data files.

Appendix A

F&G 131
(8/73)

NEW HAMPSHIRE FISH AND GAME DEPARTMENT

CONSERVATION OFFICER'S REPORT

DROWNING ☐ LOST PERSON ☐ RESCUED PERSON ☐ PLANE CRASH ☐ OTHER ☐ _____ (Specify)

Name of Subject_____ Date_____

Address_____ Phone_____

Sex_____Ht._____Wt._____Hair_____Eyes_____ DOB_____

Location Temperature:_____

Town:_____Area:_____ Weather:_____

Reported by:_____ Link-Up: Yes ☐ No ☐

Type of Plane:_____ Reg.No.:_____

Departed From:_____ Destination:_____

Conservation Officers on Detail	Hours Spent	Mileage	Meals	Other Charges
Totals:				

Date&Time Incident Occurred:_____ What was person doing:

Date&Time of Recovery:_____ (Hunting,Fishing,Hiking,etc.)

Cause of Incident:_____

Report of Medical Referee: Accidental ☐ Suicide ☐ Foul Play ☐

Blood Sample Taken: Yes ☐ No ☐ Result:_____

Name of Doctor or Medical Referee:_____

First Aid Rendered:_____

Witness of First Aid:_____

Exact Spot where located:_____

Other Agencies assisting:_____

Remarks:_____

Explanation of other charges listed above:_____

_____ Date

_____ Signature of Officer Making Report

(Use reverse side for any additional information)

Parameters used to describe lost persons

1. How many lost persons, drownings, physically disabled, plane crash, missing persons, other for each of last six years.

2. What was most common temperature for each season. Average temperature for season June - August, September - November, December - February, March - April.

3. Which weather conditions were prevalent for each season.

4. Who is the most common notifier of incidents.

5. Average number hours spent each year on Search and Rescue for each type.

6. Total cost involved in Search and Rescue each year.

7. Average hours spent on each type of incident, per incident.

8. Average cost per incident -- all types.

9. How many of each type of incident happens in each season of the year.

10. Most frequent hour for incidents for each season.

11. Average elapsed time (number hours lost) for each incident type.

12. How many incidents for each type of activity.

13. Of all lost persons, physically disabled, missing, other (not drownings, plane crashes) how many resulted in fatalities and what type of activity were these associated with.

ELIMINATE

1. mental problems, retarded, etc.	Medical history	4
2. walkaways	Type of activity	7
3. plane crashes	Type of incident	4
4. suicide	Nature of fatality	3

1. How many were residents/non residents

2. How many incidents happen in same town as residence

3. How many incidents happen in town other than residence

4. How many males/females

5. How many people in certain age groups
   Average age

   0-14
   15-20
   21-30
   31-40
   41-50
   51-60
   61-over

6. Town/county/patrol were most frequent (top 10)
   a. What were most frequent types and causes of incidents in these areas

7. Most frequent residence State, top five in order
   Town/County/Patrol (top 10)

8. How many of each type of injury

9. How many required first aid

10. How many of each type of recovery

11. How many had a previous medical history

12. How many were hunter safety graduates

13. What was the most frequent cause of incident

SELECT OUT HUNTERS/HIKERS -- how many in six years, in each year

1. Average age

2. Average numbers of hours lost

3. Average cost per incident

4. Most frequent number of people in party

5. What were most frequent "incident type's" lost, disabled

6. Where were most from -- state, and New Hampshire town/county/patrol

7. Where most got lost, etc., - most frequent town, same town as residence, other

8. Most frequent weather

9. Average temperature at time of incident

10. Who reported most frequently

11. Average hours spent on rescues

12. Average cost per rescue

13. Most frequent month

14. Most frequent hour lost, average hour lost

15. Average numbers of hours lost

16. How many hunters ended up as fatalities, nature of fatalities

17. How many had some sort of injury, what was most frequent injury

18. How many hunters required first aid

19. Were most found in same town as lost or different

20. How many of each type of recovery

21. How many had previous medical history - what type

22. How many in each year were hunter safety graduates

23. How many of each cause of incident

Select out Hunter Safety graduates

What were activities

What were "causes"

Dear [illegible]tsman,

Within the next week or two you will be receiving a questionnaire from the Fish and Game Department. The questions will be in reference to an incident in which the Department was called in on your behalf as a "lost hunter". Whether you were truly lost, late because of darkness, or a family member had merely misunderstood where you were at the time, your completion of the questionnaire is of vital importance to a study we are currently conducting on "lost hunters". A few moments of your time spent in completing the questionnaire will be very much appreciated.

Sincerely,

Charles E. Barry

Charles E. Barry
Executive Director

STATE OF NEW HAMPSHIRE

FISH AND GAME DEPARTMENT

CHARLES E. BARRY
EXECUTIVE DIRECTOR

Box 2002
34 Bridge Street
Concord N.H. 03301
(603) 271-3421

May 9, 1980

Dear Sportsman,

We are conducting a study to determine the most frequent causes of hunters becoming lost or delayed. The results of this study will be used in our hunter safety classes where we attempt to help future hunters avoid becoming lost or unreasonably delayed. Sections are taught on map and compass, survival, and first aid. However, we would like to include in our discussions some statistics and real incidents which have involved hunters in the past. Though we have in our files conservation officers' reports of incidents involving lost hunters, we feel it is vitally important to get the hunter's own perceptions of what circumstances lead him to become delayed and how the incident was resolved.

In 197__ the Fish and Game Department received a call related to your being delayed while hunting. Perhaps you had forgotten your compass and became disoriented in the woods, or you had hunted longer than expected and had been overcome by darkness, or perhaps there was a misunderstanding of arrangements and you were merely visiting with a friend after hunting. Whatever your particular circumstances may have been we would greatly appreciate your cooperation in completing a questionnaire. We realize that some time has passed since the incident, but any details that you can remember will be of help to us in making the hunter safety classes more meaningful for future hunters.

Please fill out the enclosed questionnaire as soon as possible and return it in the self-addressed stamped envelope.

Sincerely,

Charles E. Barry

Charles E. Barry
Executive Director

Rebecca B. Towle

Rebecca B. Towle
Hunter Safety Coordinator

HUNTER QUESTIONNAIRE

NAME:_____ _____ _____ ID NUMBER _ _ _ _ _

ADDRESS:_____ DATE OF INCIDENT _/ _/ _

ZIP_____

Please read each of the following questions carefully and circle the number(s) or letter (Y or N) which best corresponds to your incident. If you circle "other" please fill in the blank.

THE INCIDENT

1. What were you hunting at the time of the incident?

   1. deer
   2. rabbit
   3. bear
   4. upland game birds
   5. ducks
   6. other_____

2. Were you hunting in familiar territory? Y N

3. Did you have a dog along? Y N If yes, did the dog 1. help
   2. hinder your search to get out

4. Were you hunting
   1. alone
   2. with companions

5. What method of hunting were you using?

   1. sitting on the ground
   2. in blind
   3. stalking
   4. tree stand
   5. drive
   6. boat
   7. other_____

6. What were you doing when you first became disoriented?

   1. trailing game
   2. attempting to return from hunting
   3. entering the woods to hunt
   4. changing hunting location
   5. other_____

7. What do you remember most about the weather?

   1. clear
   2. overcast
   3. windy
   4. rain
   5. snow
   6. don't remember
   7. other_____

8. When did you first realize something was wrong?

   1. tried to make contact with companions and no response
   2. saw same spot several times
   3. overcome by darkness
   4. injured, in need of assistance
   5. recognized none of the surroundings
   6. other_____

9. What was your first reaction?

1. sit down and think about what to do
2. panic and run
3. signal for help(yell, or fire shots)
4. continue looking for familiar landmarks
5. angry at self for not being more careful
6. angry at companions for not keeping in touch
7. other_____

10. What did you do to find your way out? (circle all that apply)

1. climbed a tree
2. followed a stone wall
3. went uphill
4. went downhill
5. followed game trail or old logging trail
6. listened for sound
7. followed sun or stars
8. used map +/or compass
9. other_____

11. What equipment did you have with you? (circle all that apply)

1. firearm
2. ammunition
3. bow and arrows
4. knife
5. rope
6. fire starters
7. whistle
8. first aid kit
9. food
10. map
11. compass
12. other_____

12. After you became lost which of these things did you wish you had? (circle all that apply)

1. firearm
2. ammunition
3. bow and arrows
4. knife
5. rope
6. fire starters
7. whistle
8. first aid kit
9. food
10. map
11. compass
12. other_____

13. Did you signal for help? Y N

14. If so, what did you do? (circle all that apply)

1. left marks on trail
2. shot three times in air
3. blew whistle
4. wrote or left marks in snow
5. made fire
6. built arrows or other signal from rocks, or branches
7. yelled
8. did nothing
9. other_____

15. What did you do for food? (circle all that apply)

1. shot game
2. ate berries, edible plants
3. had brought food from home
4. didn't eat
5. other_____

16. Did you spend the night out? Y N

17. Did you build a lean-to or shelter? Y N

18. If not, what did you find for shelter?

1. rock
2. cave
3. wood structure (old cabin, Etc.)
4. tree
5. valley or other low place
6. other_____

19. What type of clothing were you wearing? (circle all that apply)

1. wool
2. cotton
3. hat
4. gloves or mittens
5. sneakers
6. layers of clothing (shirt, sweater, coat)
7. bright colors
8. insulated boots
9. hiking boots
10. others you felt helpful or unhelpful

_____

20. Did you build a fire? Y N

21. Were you confident that you would be found or find your way out within a day or two?

Y N

22. While you were lost did you ever panic or have irrational feelings? Y N

Comments_____

23. How were you expecting to get out?

1. be found by search and rescue team
2. be found by family or companions
3. bump into other hunters
4. walk out on your own
5. other_____

24. What was the actual outcome?

1. found by search and rescue team
2. found by family or companions
3. walked out on own
4. found by other_____

25. When you were found, or found own way out, were you:

1. cold
2. hungry
3. tired
4. sick
5. suffering from frost bite
6. injured
7. suffering from hypothermia
8. other_____

26. When you were found what were your feelings?

1. embarrassed
2. angry
3. non-chalant
4. elated
5. relieved
6. other_____

LEADING TO THE INCIDENT

27. Did you leave word with someone on expected return time? Y N

28. Did someone else know the location where you were to go hunting? Y N

29. What age did you begin hunting? _____

30. How many years have you hunted since? _____

31. Do you generally prepare for the unexpected before hunting? (ie: carry matches, shelter such as space blanket, extra food, first aid kit, etc.) Y N

32. Did you ever graduate from a Hunter Safety Class? Y N

33. How many times have you ever been turned around or lost in the woods?

1. one or two times
2. three to six times
3. more than six times

34. What other types of outdoor activities do you participate in? (circle all that apply)

1. snowmobiling
2. XC skiing or snowshoeing
3. fishing
4. hiking
5. trapping
6. other_____

35. What other hunting do you do? (circle all that apply)

1. deer
2. rabbit
3. bear
4. woodcock, grouse
5. raccoon
6. other_____

IMPACT OF THE INCIDENT

36. Do you still go hunting? Y N

37. Do you now do anything different in preparation for hunting trips? Y N

Please comment: _____

38. What additional steps do you now take to avoid becoming lost?

_____

39. Any additional advice you would give to others, or comments on what your experience involved which we may not have touched on?

40. May we contact you for further details by telephone? Y N

Telephone Number: ___/____-____

Enclosed is a copy of the latest NEW HAMPSHIRE NATURAL RESOURCES magazine as a token of our appreciation for your assistance in this project.

Appendix B

Appendix B

Most important thing is not to panic

Do not get uptight. Have confidence in yourself and others

If at or near dark, slowly and carefully follow the road out as taking a short cut through the woods you can see nothing. On the tote road your eyes become accustomed to the light and you can see somewhat. It's better than putting an eye out or falling

Know the area you are hunting and you should have no trouble

When hunting in rocky steep country, hunt with at least one person

Always let someone know where you're hunting and stay only in that area

Turn back before evening sets in, do a little less walking

Don't panic. Use your head (common sense)

Don't overextend yourself and keep a close watch on the time

Be fully prepared at all times

Thank you for all the help in finding me

Don't let a wounded deer lead you astray

Don't panic - your worst enemy is yourself. Nothing will bother you if you don't bother it

Stay cool

The hardest thing is to admit you're lost and convince yourself to find shelter

When stalking game you must not only be aware of the game but of the terrain in which you are hunting because there is a danger

With the exception of feeling guilty for inconveniencing the searchers because of my inattention, I had a good time

Remain confident of the outcome, study map or have description of terrain you'll be hunting

Do not panic. Follow streams or brooks. If you keep heading uphill when you never started going down hill, stop and think

Don't follow other shots being fired. Discuss with other hunters what you are doing and try to come back at certain times

When tracking in snow, watch the area you are in because miles go by fast and it takes a long time to get back

Don't try to travel out of the woods at night, wait till morning to avoid injury

Broken leg -- never hunt alone. Have buddy or companion fairly close by and apprise him of where you will be going

I would convey to others, not to panic, because I believe that's what hurt me the most.

Acquaint yourself with the area you intend to hunt. Always carry a topo map and two compasses. If you get turned around, sit down and use them.

Stay calm and don't panic. Nothing will hurt you but yourself.

Stay cool at all times.

Just enjoy it, you'll learn a lot about yourself.

Always make sure you know the area in which you are going to hunt, and make sure you always carry something to tell the correct time.

Carry a good cigarette lighter to start a fire, a newspaper to start a fire, matches blow out too easily.

Do not try to come out of woods at night. Settle in and wait till first light, because you're going to hurt yourself.

Carry some type of liquid for drinking.

Main thing for sure is not to panic and rather than walk through woods at night without the aid of a flashlight is to stay put and build a safe fire and prepare to stay the night.

Tell someone your location and time to expect you prior to the hunt.

Have understanding before going in and follow through with it.

Never hunt alone.

Always bring a little food. When hunting late afternoon make sure to brink a blanket.

When not camping in the woods, be out before sundown.

A simple kit you can make up plus D-ring saw is very little weight and is very reassuring.

Not to panic and you would be amazed at what you can do if you have faith in yourself to overcome the situation.

Don't go back in the woods unless you would know the other hunters are out.

Keep cool, have faith and know that nothing in the woods can hurt you. It's safer than the cities and highways.

Misc.
Your Game Wardens were very helpful and polite, but I hope I won't need their help in the future.

Appendix C

Appendic C.

ID NO. 79044

Your questionnaire was a little difficult to answer. Here is the story of October 8, 1979.

My wife and I arrived at Camp Otter before lunch on the 8th. Beginning the next day, I was to have a guide to do some land locked salmon fishing and grouse hunting. After having lunch on the 8th, I wanted to go grouse hunting and hired a local young man, D___ _____ , to guide me for three or four hours of hunting. Carl _____ , the camp woodland owner, asked D___ where we would be going and he mentioned two abandoned farms. When we left the camp, he decided to go some where else and when we got out of the truck, he did not look at a compass but just started walking in the woods. There was some snow on the ground and it was about 20°. The skies were a little cloudy and the wind was blowing quite strong. Two grouse flushed out of range, and pretty soon it started to snow. The snow became heavier and suddenly the guide began to panic and said, "I'm lost". He threw his hat on the ground and pounded his hand with his other fist saying, "I'm lost". I said "Get ahold of yourself, this is your home area and you've got to think and look for something familiar". He went up on a ridge and decided on a course. What happened was that we circled three or four times; always ending up in the puckerbush.

It got dark, the snow stopped, and it began getting colder. I had slipped on some moss and twisted my right knee so I suggested we find a shelter. All that was available was some downed logs and boulders. We were able to put our seat on a boulder and our heads on a log, and our feet on another log. The guide tried to start a fire but his lighter failed. I said we did not dare to go asleep, and that we had to keep a little movement in our arms and legs to keep the blood circulating.

Then I laid down, put my Setter dog on my right leg, and my left leg over the dog. (Dogs throw off some heat.) I asked the guide to get close to us and help conserve the heat. About 11:00 P.M. the guide said his feet were getting real cold because they were wet. I told him to take off his shoes and stockings and wring out his stockings and put his feet under the dog. About 12:00 A.M. we heard a shot. I asked the guide to answer it with his gun, but he could not because his safety was frozen. I picked up my gun, answered the shot and two subsequent shots, so the rescue party got a fix on us. About 3:30 P.M. we were found and we walked out; getting back to the camp around 5:00 A.M. Your warden, Mr. Carlson, was terrific and his party is to be commended for their devotion to duty and their efforts.

What did I learn? Don't depend entirely on a guide, and always have your own topo and compass. I have hunted in the state and National Forests in Michigan and Wisconsin for many years. Anyone who hunts grouse and woodcock can get turned abound and be disoriented for 20 or 30 minutes, but with a map and compass, you always find your way out.

Incidentally, we might have been out there longer if my wife had not alerted the camp owner that I was not home and it was almost 7:00 P.M. This started the search party and they started out where D___ had told the camp owner we were going -- but he went somewhere else and only an alert homeowner called in saying she had seen a truck down the road from their home, which brought the search party to that area.

"I had shot a deer with a musket. My companion searched for the wounded deer. He left, I continued to search with the idea I would fire the signal shots if I found the deer. I found the deer, fired the signal shots and started to drag the deer up to Beach Ridge Trail. I knew it would take an hour for my companion to return. He did not hear the signal shots as he was sitting next to a brook. I wanted to drag the deer to the trail so I could find him the next day. Because of darkness, I dragged over the trail and did not see it. After crossing the trail I soon realized my error. I hung the deer in a tree and continued to top of ridge as I knew that down the other side was a large brook that I could not miss and the brook would lead me down to the car. I found the car and as it was in the same place as we had left it and no note to indicate my companion's return, I fired more signal shots with no response. I then became worried about my companion & started back up Beach Ridge Trail. Approximately ½ hour later I heard a siren coming from an area approximately 1 mile away. I went back down trail, took the car and went to investigate the noise. There I found my companion and the Game Warden, Mr. Charles Barry. I told them I was glad that I had found them. We all laughed and went home to bed. I started the next morning at 6:30 with my companion to find the deer and did not get the deer out of woods until 11:30 a.m."

"Spotted 8 point buck deer watching me from a higher knoll. I was not in good position to shoot because of brush & trees. I kept making "half-circles" in an attempt to get in front of deer; (see below-normal procedure) spotted buck 2 more times in this process. The sky became over-cast and woods became dark faster than anticipated. Area unfamiliar and realized that I would sustain a personal injury to myself in attempt to walk in the dark. (per tree branch in the eye - fall over rock or off top of a high rock, etc.) I could hear cars on highway not to far off, but danger of personal injury dictated I stay where I was. I was surprised to hear Rescue Team about 10 or 10:30 p.m. Also, I was sorry that I had upset anyone as I have always told my wife not to worry if I become lost overnight. The woods hold no danger to me or anyone except in cold freezing weather. Then more precaution must be taken."

"The experience was caused due to careless compass reading. Care is a must. Also a map and proper equipment are light and when needed are a true value. The major item that allowed me to walk out was during the night the rangers fired a single flare. Seeing the flare I believed it was meant for me and put out the fire and began to walk under a full moon. Had there been additional flares I could have been out within a few hours. In talking to the rangers they said this was a new method being attempted. Although I did not get out that night I was assured of the direction to take at dawn. My sincere thanks to the rangers that helped and went into the night trying to get me out. The incident did strengthen me as an individual because I know how I will react when in trouble. Finally, orienting engineering should be a must for all hunters."

Appendix D

Appendix D.

Number of persons involved [ ][ ] Link up [ ] Y [ ] N

Type of incident
1. [ ] Drowning
2. [ ] Lost person
3. [ ] Disabled, in need of assistance
4. [ ] Plane crash
5. [ ] Missing
6. [ ] Other

Name _____

Address _____ Phone _____

Sex _____ Ht. _____ Hair _____ Eyes _____ D.O.B. _____

Location: Town _____ Area _____

Hunter Safety graduate [ ] Y [ ] N

Temp_____ Weather 1. [ ] Clear 3. [ ] Windy 5. [ ] Rain
2. [ ] Overcast 4. [ ] Snow 6. [ ] Fog
7. [ ] Other _____

Reported by 1. [ ] Family 4. [ ] AMC or other group
2. [ ] Companion 5. [ ] Passerby
3. [ ] L.E. agency 6. [ ] Other, or undetermined

Name_____ Address_____

C.O.'s on detail	Hrs.	Milage	Meals	Other charges
Totals				

Date and time incident occured — mo. [ ][ ] day [ ][ ] year [ ][ ] 24 hr. clock [ ][ ][ ][ ]

Date and time of recovery [ ][ ] [ ][ ] [ ][ ] [ ][ ][ ][ ]

Type of activity
1. [ ] hiking
2. [ ] hunting/trapping
3. [ ] fishing
4. [ ] walking
5. [ ] boating/canoe
6. [ ] X-crossing skiing, snowshoe
7. [ ] walk or run away
8. [ ] snow machine
9. [ ] swimming
10. [ ] other_____

Cause of incident
1. [ ] fall/injury
2. [ ] separated from party
3. [ ] darkness
4. [ ] equipment/vehicle failure
5. [ ] run/walk away
6. [ ] disoriented.took wrong trail
7. [ ] misunderstanding of arrangements
8. [ ] illness
9. [ ] intoxication
10. [ ] trailing animal
11. [ ] fatigue
12. [ ] high/rough water
13. [ ] thin ice
14. [ ] unknown/other_____
15. [ ] horseplay
16. [ ] other_____

Fatal ☐ Y ☐ N

Nature of fatality
1. ☐ N/A
2. ☐ natural causes
3. ☐ accident
4. ☐ suicide
5. ☐ foul play
6. ☐ drowning
7. ☐ undetermined

Blood sample taken ☐ Y ☐ N result _____

Name of Doctor or Medical Referee _____

Injury
1. ☐ none
2. ☐ cut
3. ☐ broken bone(s)
4. ☐ hypothermia
5. ☐ frost bite
6. ☐ firearm injury
7. ☐ sprain
8. ☐ other

First aid rendered ☐ Y ☐ N _____

Witness of first aid _____

Exact spot where located Town _____, City _____, Patrol _____

Distance from where lost _____

Method of recovery
1. ☐ walked out alone
2. ☐ transported out
3. ☐ walked out accompanied
4. ☐ assisted out
5. ☐ not recovered

Medical history
1. ☐ unknown
2. ☐ heart trouble
3. ☐ on medication
4. ☐ retarded, senile, or other mental problems
5. ☐ epilepsy
6. ☐ other _____

Remarks _____

_____

Other agencies assisting _____ Man hours _____ Costs _____

_____ _____ _____

_____ _____ _____

Date of report _____

_____
Signature of Officer

Narrative